

WHAT IS CLAIMED IS:

- 1 1. A method of determining local relative z-ordering information, the method comprising:
 - 2 (a) obtaining a first image frame and second image frame containing digital image data;
 - 3 (b) dividing the first image frame and second image frame into segments;
 - 4 (c) matching segments of the first image frame to the second image frame, and
5 matching segments of the second image frame to the first image frame;
 - 6 (d) determining relative offsets for the segments that represent a relative displacement
7 of the segments between image frames; and
 - 8 (e) determining for either of the image frames which segments in that frame would
9 overlap if the segments were moved by their relative offsets.
- 10 2. The method of claim 1, further comprising determining, for segments that from step (e)
11 are determined would overlap if moved by their relative offsets, a relative z-ordering.
- 12 3. The method of claim 2, further comprising breaking any cyclical relationships.
- 13 4. The method of claim 1, wherein segments are each of substantially uniform color and are
14 embodied in a plurality of geometries and areas.
- 15 5. The method of claim 2, wherein step (e) comprises considering groups of two or more
16 matched segments which share a common boundary, the segments being matched using a
17 forward or backward matching routine.
- 18 6. The method of claim 2, wherein z-ordering relationships between segments are created by
19 considering a plurality of segments in the first image frame which would overlap when
20 moved by their relative offsets determined in step (d), placing segments over one another
21 and comparing the results with the second image frame to calculate difference
22 parameters, and determining z-ordering relationships from the difference parameters.
- 23 7. The method of claim 6, wherein an error minimization technique is used.
- 24 8. The method of claim 3, wherein the cyclical relationships are broken by:

- 2 (a) obtaining a sequence of segments which share a cyclical z-ordering relationship;
3 and
4 (b) canceling the weakest relationships between segments until the cyclical relationship
5 is broken.
- 1 9. The method of claim 8, wherein the strength of a relationship between segments is based
2 on a difference of average errors.
- 1 10. The method of claim 8, wherein the strength of relationships between segments is based
2 on any suitable statistical parameter.